

UNIT WEIGHTS, VOID RATIO, POROSITY, AND DEGREE OF SATURATION (Volumetric Method)

Date _____

Project _____

Boring No. _____

Water Content

Sample or specimen No.							
Tare No.							
Weight in grams	Tare plus wet soil						
	Tare plus dry soil						
	Water W W						
	Tare						
	Dry Soil W S						
Water content W							

Weight-Volume Relations

Sample or specimen No.							
Cylinder No.							
Centi-Meters	Height of cylinder H						
	Inside diameter of cylinder D						
Weight in grams	Soil and container						
	Container						
	Wet soil W						
	Dry soil W S						
Specific gravity of soil G S							
Volume in cc	Wet soil (volume of cylinder) V						
	Dry soil = W_S / G_S V S						
lb per cu ft	Wet unit wt = $(W/V) 62.4$ γ_m						
	Dry unit wt = $(W_S / V) 62.4$ γ_d						
Void ratio = $(V - V_S) / V_S$ e							
Porosity, % = $[(V - V_S) / V] \times 100$ n							
Degree of saturation, % = $[V_W / (V - V_S)] \times 100$ S							

Volume of cylinder, $V = \frac{\pi D^2 H}{4}$

Volume of water = $V_W = \frac{W_W}{\text{specific gravity of water}^*}$

* Specific gravity of water in metric system = 1 (approx)

Remarks _____

Technician _____ Computed by _____ Checked by _____